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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,000	06/07/2006	Shinichi Inoue	3273-0226PUS1	9234

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

HEINCER, LIAM J

ART UNIT	PAPER NUMBER
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1767

NOTIFICATION DATE	DELIVERY MODE
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07/29/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/582,000	Applicant(s) INOUE ET AL.	
	Examiner LIAM HEINCER	Art Unit 1767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7 and 26-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7 and 26-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 14, 2011 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder et al. (US Pat. 5,728,766) in view of Singha et al. (Journal of Applied Polymer Science, Vol. 68, 1647-1652, 1997) and Leube et al. (US Pat. 6,403,727) as evidenced by the declaration filed November 12, 2010.

Considering Claim 7: Schauder et al. teaches a method for producing a rubber like article (6:30-40) comprising an ethylene-propylene copolymer (2:25-54) comprising molding and vulcanizing the

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article (4:52-5:11). Schauder et al. teaches the copolymer as having a molecular weight distribution between 1 and 8 and a Mooney viscosity of 200 to 70,000 (4:19-27). As shown by the original specification, EPM rubbers having a Mooney viscosity 170 have a molecular weight of 600,000 and molecular weight increases as Mooney viscosity increases (pg. 4). As such, a polymer with a Mooney viscosity of 200 to 70,000 would have a molecular weight of greater than 900,000.

Schauder et al. does not teach ethylene-propylene copolymer as being a hydrogenated product of natural rubber. However, Singha et al. teaches hydrogenating a natural rubber/*Hevea brasiliensis* to a degree of hydrogenation of 100% (Table II) in the presence of a rhodium complex in a solvent (pg. 1652). Schauder et al. and Singha et al. are analogous art as they are concerned with the same field of endeavor, namely ethylene-propylene copolymers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the hydrogenated rubber of Singha et al. as the ethylene-propylene polymer in the molded article of Schauder et al., and the motivation to do so would have been, as Singha et al. suggests, it is an easy method to produce ethylene-propylene copolymers (pg. 1647-48).

Singha et al. does not teach the hydrogenation as occurring in the state of latex. However, Leube et al. teaches hydrogenating a polyisoprene polymer (5:49-57) with a rhodium catalyst in an aqueous dispersion/latex in water (2:27-3:36). Schauder et al., Singha et al., and Leube et al. are analogous art as they are concerned with the same field of endeavor, namely ethylene-propylene copolymers (or hydrogenated polyisoprene). It would have been obvious to a person having ordinary skill in the art at the time of invention to have hydrogenated the natural rubber in a latex as in Leube et al., and the motivation to do so would have been, as Leube et al. suggests, organic solvent avoidance is desirable for workplace safety and environmental reasons (1:63-2:4). As Leube et al. teaches that the hydrogenation process works on polymers of polyisoprene, a person having ordinary skill in the art at the time of invention would have a reasonable expectation of success when using the process with natural rubber/a specific polyisoprene.

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder et al. (US Pat. 5,728,766) in view of Singha et al. (Journal of Applied Polymer Science, Vol. 68, 1647-1652, 1997) as evidenced by the declaration filed November 12, 2010.

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Considering Claim 26: Schauder et al. teaches a rubber like article (6:30-40) comprising 70 to 95 weight percent of EPDM resin and 5 to 30 weight percent of an ethylene-propylene copolymer (2:25-54) that has been molded and vulcanized (4:52-5:11). Schauder et al. teaches the copolymer as having a molecular weight distribution between 1 and 8 and a Mooney viscosity of 200 to 70,000 (4:19-27). As shown by the original specification, EPM rubbers having a Mooney viscosity 170 have a molecular weight of 600,000 and molecular weight increases as Mooney viscosity increases (pg. 4). As such, a polymer with a Mooney viscosity of 200 to 70,000 would have a molecular weight of greater than 830,000.

Schauder et al. does not teach ethylene-propylene copolymer as being a hydrogenated product of natural rubber. However, Singha et al. teaches hydrogenating a natural rubber/Hevea rasiliensis to a degree of hydrogenation of 100% (Table II) in the presence of a rhodium complex in a solvent (pg. 1652). Schauder et al. and Singha et al. are analogous art as they are concerned with the same field of endeavor, namely ethylene-propylene copolymers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the hydrogenated rubber of Singha et al. as the ethylene-propylene polymer in the molded article of Schauder et al., and the motivation to do so would have been, as Singha et al. suggests, it is an easy method to produce ethylene-propylene copolymers (pg. 1647-48).

Singha et al. does not teach the hydrogenation as occurring in the state of latex. However, the instant claim is a product by process claim. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). See MPEP § 2113. As the original specification teaches that the latex and solvent embodiments are interchangeable, it is being assumed that the properties will be similar, absent evidence to the contrary.

Considering Claims 27-29: Schauder et al. teaches the composition as comprising 0.5 to 70 phr of resin modifiers (6:5-26).

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder et al. (US Pat. 5,728,766) in view of Singha et al. (Journal of Applied Polymer Science, Vol. 68, 1647-1652, 1997) and Leube et al. (US Pat. 6,403,727) as evidenced by the declaration filed November 12, 2010. Considering Claim 26: Schauder et al. teaches a rubber like article (6:30-40) comprising 70 to 95 weight percent of EPDM resin and 5 to 30 weight percent of an ethylene-propylene copolymer (2:25-54) that has been molded and vulcanized (4:52-5:11). Schauder et al. teaches the copolymer as having a molecular weight distribution between 1 and 8 and a Mooney viscosity of 200 to 70,000 (4:19-27). As shown by the original specification, EPM rubbers having a Mooney viscosity 170 have a molecular weight of 600,000 and molecular weight increases as Mooney viscosity increases (pg. 4). As such, a polymer with a Mooney viscosity of 200 to 70,000 would have a molecular weight of greater than 830,000.

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ordinary skill in the art at the time of invention would have a reasonable expectation of success when using the process with natural rubber/a specific polyisoprene.

Considering Claims 27-29: Schauder et al. teaches the composition as comprising 0.5 to 70 phr of resin modifiers (6:5-26).

Claims 30-32 and 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schauder et al. (US Pat. 5,728,766) in view of Singha et al. (Journal of Applied Polymer Science, Vol. 68, 1647-1652, 1997) and Leube et al. (US Pat. 6,403,727) as evidenced by the declaration filed November 12, 2010.

Considering Claim 7: Schauder et al. teaches a method for producing a rubber like article (6:30-40) comprising an ethylene-propylene copolymer (2:25-54) comprising molding and vulcanizing the article (4:52-5:11). Schauder et al. teaches the copolymer as having a molecular weight distribution between 1 and 8 and a Mooney viscosity of 200 to 70,000 (4:19-27). As shown by the original specification, EPM rubbers having a Mooney viscosity 170 have a molecular weight of 600,000 and molecular weight increases as Mooney viscosity increases (pg. 4). As such, a polymer with a Mooney viscosity of 200 to 70,000 would have a molecular weight of greater than 900,000.

Schauder et al. does not teach ethylene-propylene copolymer as being a hydrogenated product of natural rubber. However, Singha et al. teaches hydrogenating a natural rubber/Hevea brasiliensis to a degree of hydrogenation of 100% (Table II) in the presence of a rhodium complex in a solvent (pg. 1652). Schauder et al. and Singha et al. are analogous art as they are concerned with the same field of endeavor, namely ethylene-propylene copolymers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the hydrogenated rubber of Singha et al. as the ethylene-propylene polymer in the molded article of Schauder et al., and the motivation to do so would have been, as Singha et al. suggests, it is an easy method to produce ethylene-propylene copolymers (pg. 1647-48).

Singha et al. does not teach the hydrogenation as occurring in the state of latex. However, Leube et al. teaches hydrogenating a polyisoprene polymer (5:49-57) with a rhodium catalyst in an aqueous dispersion/latex in water (2:27-3:36). Schauder et al., Singha et al., and Leube et al. are analogous art as they are concerned with the same field of endeavor, namely ethylene-propylene copolymers (or hydrogenated polyisoprene). It would have been obvious to a person having

ordinary skill in the art at the time of invention to have hydrogenated the natural rubber in a latex as in Leube et al., and the motivation to do so would have been, as Leube et al. suggests, organic solvent avoidance is desirable for workplace safety and environmental reasons (1:63-2:4). As Leube et al. teaches that the hydrogenation process works on polymers of polyisoprene, a person having ordinary skill in the art at the time of invention would have a reasonable expectation of success when using the process with natural rubber/a specific polyisoprene.

Response to Arguments

Applicant's arguments with respect to claims 7 and 30-34 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed June 14, 2011 have been fully considered but they are not persuasive, because:

The applicant's arguments with respect to the product claims (claims 26-29) are not persuasive. The applicant argues that the references do not teach the claimed process steps as being performed in a latex. The instant claim is a product by process claim. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). See MPEP § 2113. As the original specification teaches that the latex and solvent embodiments are interchangeable, it is being assumed that the properties will be similar, absent evidence to the contrary.

Allowable Subject Matter

Claim 32 currently includes a Markush group of catalysts for the homogeneous catalyst embodiment. The claim currently includes rhodium complex catalysts, which is taught by the art as shown above. However, Leube et al. teaches that the other catalysts known in the art for hydrogenating diene polymers (i.e. the other claimed catalysts) are not suitable for hydrogenation in

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a an aqueous dispersion/latex due to the lack of interaction with the catalyst systems with the active sites (1:39-54 and 2:27-39). As the claimed process is taught in the art to not be feasible with the claimed catalysts (outside of the rhodium complex), the claimed process would not be obvious to a person having ordinary skill in the art at the time of invention. Should claim 32 be amended to remove rhodium complexes and be incorporated into claim 30, the claim would be allowable over the prior art. The allowable subject matter would also be applicable to claim 7.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIAM HEINCER whose telephone number is (571)270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Liam Heincer/

Examiner, Art Unit 1767

July 25, 2011